

WHAT IS CLAIMED IS:

1. A method for assembling a gas turbine engine, said method comprising:

coupling a first structure within the gas turbine engine, wherein the first structure includes a plurality of sockets extending from a radially inner surface of the first structure; and

coupling a second structure to the first structure by inserting a radial pin through the second structure and into each respective socket such that the first structure is aligned axially, circumferentially, and with respect to an engine centerline axis extending through the gas turbine engine.

2. A method in accordance with Claim 1 wherein the second structure also includes at least one second opening and the radial pin includes a least one opening, wherein said coupling a second structure to the first structure by inserting a pin through the second structure further comprises:

inserting a fastener through the radial pin opening and through the second structure second opening; and

using the fastener to secure the radial pin to the first structure such that the second structure is aligned axially, circumferentially, and with respect to an engine centerline axis extending through the gas turbine engine.

3. A method in accordance with Claim 1 wherein said coupling a first structure within the gas turbine engine further comprises coupling a plurality of segmented nozzles within the gas turbine engine, wherein each segmented nozzle includes a socket extending from a radially inner surface of the segmented nozzle.

4. A method in accordance with Claim 1 wherein said coupling a first structure within the gas turbine engine further comprises coupling a plurality of segmented nozzles within the gas turbine engine, wherein each segmented nozzle

includes a socket integrally formed with each segmented nozzle and extending from a radially inner surface of the segmented nozzle.

5. A method in accordance with Claim 1 wherein said inserting a pin through the second structure and into the socket comprises inserting a radial pin through the second structure and into the socket, wherein the socket has a first width and the radial pin has a second width that is approximately five one-thousandths of an inch smaller than the first width.

6. An apparatus for coupling an inner structure to an outer structure in a gas turbine engine, wherein at least one of the outer structure and the inner structure includes a plurality of sockets, and wherein the remaining structure includes at least a first opening and a second opening, said apparatus comprises:

a radial pin inserted through said structure first opening and into each said socket such that said inner structure is aligned axially, circumferentially, and with respect to an engine centerline axis extending through the gas turbine engine; and

at least one fastener inserted through said structure second opening such that each said radial pin is secured to said inner structure.

7. An apparatus in accordance with Claim 6 wherein at least one of the outer structure and the inner structure further includes a plurality of nozzle segments.

8. An apparatus in accordance with Claim 6 wherein said radial pin comprises two openings and said apparatus further comprises exactly two fasteners inserted through said two radial pin openings and said inner structure second openings.

9. An apparatus in accordance with Claim 6 wherein said socket comprises a first width and said radial pin comprises a second width that is approximately five one-thousandths of an inch less than said first width.

10. A gas turbine engine comprising:

an outer structure comprising a plurality of sockets;

an inner structure comprising a plurality of openings extending therethrough; and

a radial pin extending through said inner structure and into each said socket such that said inner structure is aligned axially, circumferentially, and with respect to an engine centerline axis extending through the gas turbine engine.

11. A gas turbine engine in accordance with Claim 10 wherein said outer structure comprises a plurality of nozzle segments.

12. A gas turbine engine in accordance with Claim 11 wherein each said socket is formed unitarily with each said nozzle segment.

13. A gas turbine engine in accordance with Claim 10 wherein each said socket comprises a first width and each said radial pin comprises a second width that is approximately five one-thousandths of an inch less than said first width.

14. A gas turbine engine in accordance with Claim 10 further comprising a plurality of fasteners extending through said radial pin and said inner hub structure, said plurality of fasteners configured to couple said radial pin to said inner hub structure.

15. A gas turbine engine in accordance with Claim 14 wherein each said fastener comprises a bolt and a locking nut coupled to said bolt.

16. A gas turbine engine in accordance with Claim 10 wherein said radial pin comprises a substantially circular cross-sectional profile and said socket comprises a cross-sectional profile substantially similar to said radial pin cross-sectional profile.

17. A gas turbine engine in accordance with Claim 11 wherein each said nozzle segment comprises exactly one socket configured to receive said radial pin.

18. A gas turbine engine in accordance with Claim 10 wherein each said radial pin is secured to the inner hub structure using exactly two fasteners.

19. A gas turbine engine in accordance with Claim 10 wherein said gas turbine engine comprises a two-stage low-pressure turbine and a single-stage high pressure turbine.